

ULTRA-WIDEBAND RECEIVER AND TRANSMITTER

CROSS-REFERENCE TO RELATED APPLICATIONS

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This application combines the transmitter-receiver disclosures and is a continuation of commonly-owned U.S. patent applications Serial Nos. 08/857,836 and 08/872,729 filed May 16, 1997 and June 11, 1997, respectively, by the same inventors hereof (now U.S. Pats. 6,026,125 and 5,901,172, respectively). The subject matter of each of said applications is incorporated herein.

This application is also related to commonly-owned U.S. application Serial No. 09/118,919 filed July 20, 1998 (now U.S. Pat. 6,239,741), also incorporated herein.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to the field of ultra-wideband communication systems. More particularly, it relates to the controlled transmission and reception of ultra-wideband electromagnetic pulses.

2. Background of Related Art

Ultra-wideband (UWB) systems, both for radar and communications applications, have historically utilized impulse, or shock-excited, transmitter techniques in which an ultra-short duration pulse (typically tens of picoseconds to a few nanoseconds in duration) is directly applied to an antenna which then radiates its characteristic impulse response. For this reason, UWB systems have often been referred to as "impulse" radar or communications. In addition, since the excitation pulse is not a modulated or filtered waveform, such systems have also been termed "carrier-free" in that no